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Excerpted from *Precision Framing*

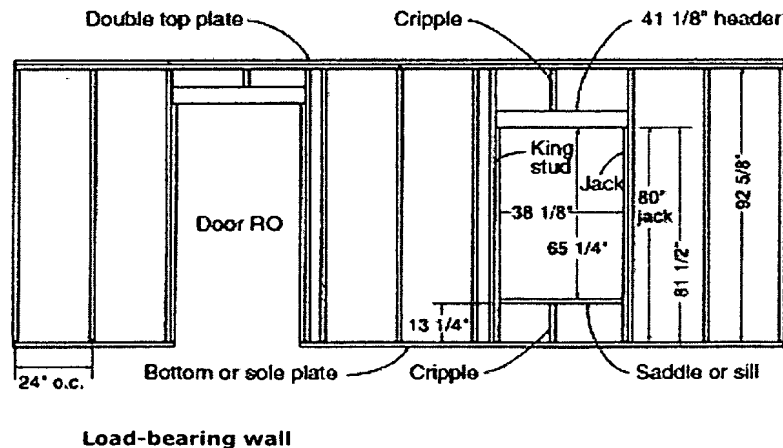
## Anatomy of a Stud-Framed Wall

### Proper framing for bearing and nonbearing walls

by Michael Guertin and Rick Arnold

#### Wall plates

A wall is a collection of studs (usually sized 2x4 or 2x6) equally spaced (usually 16 in. or 24 in. on center) and sandwiched between top and bottom plates. The top plate can be either single or double. Double plating is most common on load-bearing walls unless the roof rafters or trusses and floor joists stack directly over the studs in the wall, then a single top plate can be used.



#### Headers

Large openings in the wall are made for windows and doors. When the opening is greater in width than the stud spacing -- and most windows are wider than 24 in. -- then a header must be inserted to carry the load of the interrupted stud(s). A header is a simple beam sized to support the load above the opening it spans.



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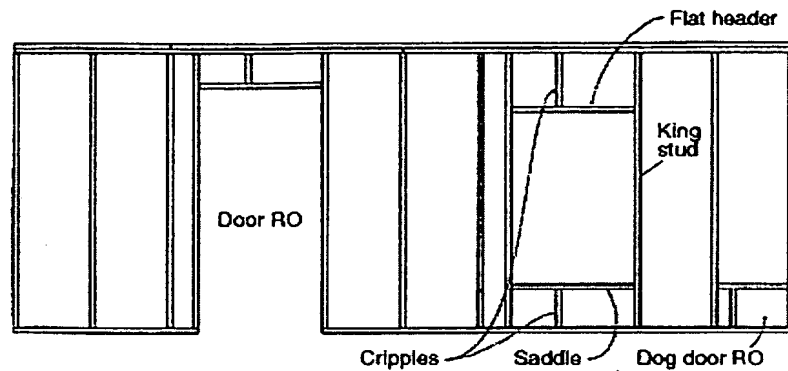
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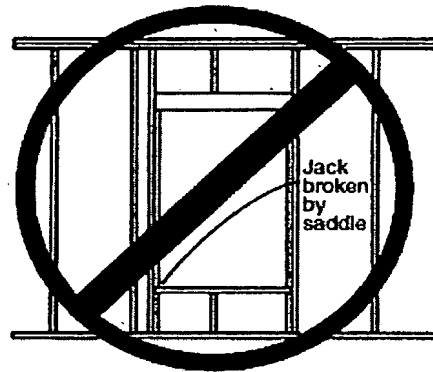
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Nonbearing wall

#### Jack studs and king studs

The header is supported by a jack stud at each end. Jacks, sometimes called trimmers, fit under each end of a header, and they transfer the load that the header carries down to the bottom plate and the framing beneath. Nailed to the jacks are full-height studs called king studs; they support the assembly between the plates. Sometimes jacks must be doubled on wide openings so there's enough supporting surface for the header to bear on. Jacks can be replaced with a steel header hanger attached to the king stud.




Avoid this practice.

#### Saddles and cripples

A saddle (also called a sill) forms the bottom of a window opening. It's a piece of 2x stock laid flat and nailed between the jacks. Cripples are short pieces of 2x stock that run underneath the saddle. And, depending on a header's height, cripples can run from the header to the plate. Cripples are located at the points where a common stud would have been located had it not been interrupted by the opening.

Mike Guertin and Rick Arnold are professional builders in Rhode Island with 20 years' experience building custom homes. In addition to being contributing editors for *Fine Homebuilding* magazine, they have written numerous articles on homebuilding, and they conduct regular seminars for builders.

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